

Claims

1. A system for distributing articles comprising:
 - a) a vending machine, adapted to distribute said articles and equipped with a
5 computer system comprising a micro-controller and memory tables, and a
payment module for credit and debit cards;
 - b) a server comprising a source database which consists in data concerning all
the articles distributed by said vending machine and data relative to the
authorizations of different users, administrators and technicians who use
10 said vending machine or the server;
 - c) management software;
 - d) communication means linking the vending machine to the server;
 - e) a computer terminal linked to the server, to the management software and to
the communication means;
- 15 wherein said management software links said server, said vending machine, said
computer terminal and said communication means in a network which allows
remote control operations on said database with the help of said computer
terminal.
- 20 2. A system as claimed in claim 1, wherein a plurality of vending machines located in
one or more locations are linked in a network and are remotely accessible by the
computer terminal with the help of said communication means.
3. A system as claimed in claim 1, wherein said vending machine is adapted to
25 distribute articles which are located outside said vending machine.
4. A system as claimed in claim 3, wherein said vending machine comprises an
optical bar code reader.
- 30 5. A system as claimed in claim 1, wherein a plurality of computer terminals located
in one or a plurality of locations are linked in a network and possess the capacity to
remotely control one or a plurality of vending machines with the help of said
communication means.

6. A system as claimed in claim 1, comprising control means for the remote ejection of articles from said vending machine.
7. A system as claimed in claim 6, wherein the vending machine comprises a plurality of compartments into which the articles are located and wherein said ejection control means comprise means for transmitting an ejection command from said computer terminal.
8. A system as claimed in claim 1, comprising means for the remote sales data retrieval relative to the use of said vending machine.
9. A system as claimed in claim 8, wherein said sales data retrieval means comprises means for transmitting a sales data to said server.
10. A system as claimed in claim 1, comprising means for the retrieval of article filling data for said vending machine.
11. A system as claimed in claim 10, wherein said filling data retrieval means comprises means for transmitting a data retrieval command.
12. A system as claimed in claim 11, comprising means for generating an inventory file per vending machine.
13. A system as claimed in claim 1, comprising means for the remote compartment modification, achieved from said computer terminal, via said network and with the help of said communication means.
14. A computer management system as claimed in claim 13, wherein said remote compartment modification means comprise means for transmitting a modification command to the articles' distribution parameters and the information relative to the different articles offered inside of the compartments from said computer terminal.

15. A system as claimed in claim 1, comprising means for the remote initialization of said vending machine, achieved from said computer terminal, via said network and with the help of said communication means.
- 5 16. A system as claimed in claim 15, wherein said remote initialization comprise means to transmit an inventory transmission command to said vending machine from said computer terminal.
17. A system for distributing articles comprising:
- 10 a) a vending machine, adapted to distribute articles and equipped with a computer system comprising a micro-controller and memory tables and a payment module for credit and debit cards;
- b) a server comprising a source database which consists in data concerning all the articles to be distributed by said vending machine, information relative to the operation of said vending machine and the data relative to the authorizations of different users, administrators and technicians which use said vending machine or the server;
- 15 c) a management software;
- d) a computer terminal linked to the server, to the management software and to the communication means;
- 20 e) communication means linking the vending machine to the server;
- wherein said management software links said server, said vending machine, said computer terminal and said communication means in a network which allows the use of virtual compartments associated with articles located outside of said vending machine.
- 25
18. A system as claimed in claim 17, wherein said user reads a bar code identification of the articles to be distributed from said virtual compartment.
- 30 19. A system as claimed in claim 18, wherein the computer system of said vending machine comprises article availability verification means.
20. A system for distributing articles comprising:

- a) a vending machine, adapted to distribute articles and equipped with a computer system comprising a micro-controller and memory tables and a payment module for credit and debit cards;
 - b) a server comprising a source database which consists in data concerning all the articles to be distributed by said vending machines, information relative to the operation of said vending machine and the data relative to the authorizations of different users, administrators and technicians which use said vending machine or the server;
 - c) a management software;
 - d) a computer terminal linked to the server and to the management software;
 - e) communication means linking the vending machine to the server;
 - f) article selection means;
 - g) payment means;
- wherein said management software links said server, said vending machine, said computer terminal and said communication means in a network.

21. A method of distributing articles using a system, as claimed in claim 20, comprising the following step:

- a) the entry of said user's identification;
- b) the validation of the identification by said computer system's micro-controller of said vending machine;
- c) the entry of the selection numbers;
- d) verification in the micro-controller's memory tables of the selected articles' availability;
- e) search for all the selected articles' prices in the memory tables of said computer system;
- f) calculation of the total cost by said computer system;
- g) display of the price on the screen of said vending machine;
- h) invitation to said user to select and initiate the payment mode;
- i) the acquisition of data by said payment module;
- j) connection and transmission by modem of the banking data;
- k) reception and acquisition of banking system's data confirming the sale;
- l) printing of a sale receipt destined to the user which can be formatted and including the information relative to the distribution;

m) initiation of the ejection mechanism of said vending machine or of the distribution confirmation in the case of a virtual article.

22. A system, as claimed in claim 20, wherein many selections are possible for the same sale.

23. A system for a vending machine comprising:

- a) a vending machine, adapted to distribute articles and equipped with a computer system comprising a micro-controller and memory tables and a payment module for credit and debit cards;
- b) a server comprising a source database which consists in data concerning all the articles to be distributed by said vending machine, the information relative to the recording of said vending machine and the data relative to the authorizations of different users, administrators and technicians which use said vending machine or the server;
- c) a management software;
- d) a computer terminal linked to the server and to the management software;
- e) communication means linking the vending machine to the server;

wherein said management software links said server, said vending machine, said computer terminal and said communication means in a network which offers a bi-directional communication functionality allowing the sending of messages.

24. A method of distributing articles using a system, as claimed in claim 23, wherein said bi-directional communication, comprising a list of messages contained within said server's database, is initiated when one of the configuration condition of the management system requiring the sending of a message is achieved, and with the server's connection steps, the sending of the message to the server and for the retrieval of the messages by the addressee.

25. A method of distributing articles using a system as claimed in claim 6, comprising the following steps:

- a) connection to said network with the help of said communication means;
- b) identification of said administrator;
- c) identification of said vending machine;

- d) identification of the number of the compartment from which an article is to be ejected;
- e) sending of a ejection command to said vending machine;
- f) transmission of the command by a micro-controller in the vending machine
- 5 to an ejection mechanism connected to said compartment;
- g) ejection of the article.

26. A method, as claimed in claim 25, further comprising a filling step of the vending machine's empty compartments, updating the computer system's database of said
10 vending machine with the recording of the filling data and the generation of the filling file.

27. A method, as claimed in claim 26, wherein the filling and the generation of said filling file is accomplished with the following step which are performed by the
15 technician during the filling of said vending machine :

- a) identification of said technician;
- b) opening of said vending machine;
- c) selection of the filing bar code;
- d) reading of the bar code for each empty compartment to fill and followed by
20 the filling;
- e) warning with the sending of a message by said vending machine to the technician in the case of article modifications previously initiated by message from the computer terminal;
- f) article modifications if necessary;
- 25 g) memory table update of said computer system;
- h) closing of the door.

28. A system as claimed in claim 1, wherein said computer system's memory table of said vending machine comprises a copy of its own inventory which is independent
30 from said server.

29. A method of distributing articles using a system as claimed in claim 9 comprising the following steps:

- a) connection to said network with the help of the communication means;

- b) identification of said administrator;
- c) identification of said vending machine;
- d) sending of a sales data retrieval command to said vending machine;
- e) initiation of the compilation of the sales data retrieval of the articles by said
5 micro-controller of said vending machine;
- f) sending of the sales data of the articles since last command;
- g) creation of a sales file on said server.

30. A method of distributing articles using a system as claimed in claim 11
10 comprising the following steps:

- a) connection to said network with the help of the communication means;
- b) identification of said administrator;
- c) sending of a filling data retrieval command to said server;
- d) search of the existence of said filling files inside said server from this
15 vending machine;
- e) initiation of a database update with the help of said filling files originating
from said vending machine and received since the last command.

31. A method of distributing articles using a system as claimed in claim 14
20 comprising the following steps:

- a) connection to said network with the help of the communication means;
- b) identification of said administrator;
- c) access to said database;
- d) identification of said vending machine;
- 25 e) identification of said compartment to be modified;
- f) modifications to the database regarding the distribution parameters and/or a
change of article;
- g) sending of a compartment modification command to said vending machine;
- h) automatic modification of the computer system's memory table of said
30 vending machine if the modification relates to a distribution parameter;
- i) modification of the computer system's memory table delayed to the filling
of said vending machine if the modification relates to the article to be
modified.

32. A method of distributing articles using a system as claimed in claim 16 comprising the following steps:

- a) connection to said network with the help of the communication means;
- b) identification of said administrator;
- 5 c) access to said database;
- d) identification or creation of said identification profile of said vending machine;
- e) modification or transfer to said database of an inventory profile from an already existing vending machine to said vending machine to be initialized;
- 10 f) connection to said vending machine;
- g) sending of a command starting the initialization to the computer system of said vending machine.

15